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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,151	10/20/2003	Sumeet Sandhu	114367-150286	6395

31817 7590 02/09/2007
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EXAMINER

KNOWLIN, THJUAN P

ART UNIT	PAPER NUMBER
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2614

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/689,151

Applicant(s)

SANDHU, SUMEET

Examiner

Thjuan P. Knowlin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Walton et al (US Patent Application, Pub. No.: US 2003/0087673 A1).
2. In regards to claims 1 and 15, Walton discloses a method and article, comprising: operating in a multiple input, multiple output mode (i.e., MIMO mode); and in the event of a predetermined condition, operating in a spatial division, multiple access mode (i.e., N-SIMO mode or SDMA) (See pg. 1, paragraph [0009]; pg. 1, paragraph [0012] – [0013]; pg. 2, paragraph [0033]; pg. 4, paragraph [0047]; pg. 10, paragraph [0118]; and pg. 10, paragraph [0122] – [0123]).
3. In regards to claims 2, 16, and 30, Walton discloses a method, article, and apparatus, wherein the predetermined condition includes a latency value exceeding a predetermined value (See pg. 3, paragraph [0041]; pg. 6, paragraph [0079]; and pg. 8, paragraph [0088]).

4. In regards to claims 3, 8, 9, 17, 22, and 23, Walton discloses a method and article, wherein the predetermined condition includes a throughput value being below a predetermined value (See pg. 7, paragraph [0089] – [0091] and pg. 12, paragraph [0141]).
5. In regards to claims 4 and 18, Walton discloses a method and article, wherein the predetermined condition includes a number of collisions exceeding a predetermined value (See pg. 3, paragraph [0041]; pg. 6, paragraph [0079]; and pg. 8, paragraph [0088]).
6. In regards to claims 5, 10, 19, and 24, Walton discloses a method and article, wherein the predetermined condition includes a desired higher spectral efficiency (See pg. 7, paragraph [0089] – [0091]).
7. In regards to claims 6 and 20, Walton discloses a method and article, wherein the predetermined condition includes a number of receivers exceeding a predetermined value (See pg. 3, paragraph [0038] and pg. 9, paragraph [0104]).
8. In regards to claims 7 and 21, Walton discloses a method and article, comprising: operating in a spatial division, multiple access mode (i.e., N-SIMO mode or SDMA); and in the event of a predetermined condition, operating in a multiple input, multiple output mode (i.e., MIMO mode) (See pg. 10, paragraph [0118] and pg. 10, paragraph [0122] – [0123]).
9. In regards to claims 11 and 25, Walton discloses a method and article, wherein the predetermined condition includes a desired higher quality of service for at least one user (See pg. 3, paragraph [0041] and pg. 7, paragraph [0091]).

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10. In regards to claims 12 and 26, Walton discloses a method and article, comprising: estimating a channel matrix for at least one or more receivers (See pg. 3, paragraph [0038]); in the event the channels are well-conditioned, operating in a multiple input, multiple output mode; and otherwise operating in a spatial division, multiple access mode (See pg. 1, paragraph [0009]; pg. 1, paragraph [0012] – [0013]; pg. 2, paragraph [0033]; pg. 4, paragraph [0047]; pg. 10, paragraph [0118]; and pg. 10, paragraph [0122] – [0123]).

11. In regards to claims 13, 14, 27, and 28, Walton discloses a method and article, further comprising, while operating in a multiple input, multiple output mode, observing a media access layer performance at transmitter, and in the event of poor media access layer performance, switching to a spatial division, multiple access mode (See pg. 7, paragraph [0091] – [0092]).

12. In regards to claim 29, Walton discloses an apparatus, comprising: a transceiver (i.e., transmit-receive antenna) (See pg. 3, paragraph [0038]); at least two or more omnidirectional antennas to couple to said transceiver; and a baseband processor to couple to said transceiver, wherein said baseband processor and said transceiver switch from a multiple input, multiple output mode to a spatial division, multiple access mode under a first condition, and switch from a spatial division, multiple access mode to a multiple input, multiple output mode under a second condition (See pg. 11, paragraph [0134]; pg. 12, paragraph [0140] – [0141]; and pg. 13, paragraph [0150]).

13. In regards to claim 31, Walton discloses an apparatus, wherein the second condition includes at least one of a lower signal-to-noise ratio, a higher bit error rate, a

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lower spectral efficiency, a desired higher data rate for at least one receiver, a desired higher quality of service for at least one receiver, and a lower number of receivers (See pg. 15, paragraph [0166] and pg. 15, paragraph [0169]).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Trikkonen et al (US Patent Application, Pub. No.: 2004/0002364 A1) teach a transmitting and receiving methods. Heath, Jr. et al (US 6,937,592) teach a wireless communications system that supports multiple modes of operation.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thjuan P. Knowlin whose telephone number is (571) 272-7486. The examiner can normally be reached on Mon-Fri 8:30-5:00pm.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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